

REMARKS

Introduction

New claims 37-42 have been added. Support for new claims 37-42 is found in, for example, pg. 10, lines 17-19; Table I; pg. 13, line 22 – pg. 23, line 4; and Fig. 5. Care has been taken to avoid the introduction of new matter. In view of the foregoing amendments and the following remarks, Applicants respectfully submit that all pending claims are in condition for allowance.

Claim Rejection Under 35 U.S.C. § 102

Claims 1, 2, 4-7, 11, 113, 14, 26-28, 32, and 35 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,888,211 (hereinafter Oka). This rejection is traversed and reconsideration and withdrawal respectfully requested.

Claim 1, for example, recites, "...an outermost **granular** magnetic recording layer."

The Office Action asserts that Oka teaches a method of manufacturing granular magnetic recording media and treating the exposed nano-rough and porous surface of the granular recording layer to provide at least an increased microstructural homogeneity. Oka discusses sputter etching the surface of the magnetic layer (col. 11, lines 43-46). Contrary to the Examiner's assertion, Oka is *completely silent* regarding the **granular** magnetic recording layer, as required by claims 1, 26, and 32.

As described in the present specification (*see, e.g.*, pg. 5, lines 18-24), a granular magnetic layer is one in which the magnetic grains are segregated by the formation of oxides, nitrides, and/or carbides at the boundaries between adjacent grains. Oka does not disclose

segregating magnetic grains by forming oxides, nitrides, and/or carbides at the boundaries between adjacent grains. Rather, Oka segregates magnetic columnar structures by voids between the columnar structures.

Thus, Oka fails to disclose, at a minimum, "...an outermost **granular** magnetic recording layer," as required by claims 1, 26, and 32.

Anticipation under 35 U.S.C. § 102 requires that "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference."

Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ 2d 1051, 1053 (Fed Cir. 1987). Based on the foregoing, Oka does not anticipate independent claims 1, 26, and 32, or any claim dependent thereon.

Claim Rejections Under 35 U.S.C. § 103

Claims 8, 9, 12, 30, 31, and 33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Oka in view of JP 08-055323 (hereinafter Yoshida).

Neither Oka nor Yoshida, individually or combined, teach or suggest, "...an outermost **granular** magnetic recording layer," as required by claims 1, 26, and 32, for example.

Claims 8, 9, and 12 depend from claim 1, claims 30 and 31 depend from claim 26, and claim 33 depends from claim 32, and include all of the features of that claim plus additional features, which are not taught or suggested by the cited references. Therefore, for at least these reasons, it is respectfully submitted that claims 8, 9, 12, 30, 31, and 33 also patentably distinguish over the cited references.

Claims 10 and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Oka in view of Yoshida as applied to claims 8, 9, 12, 30, 31, and 33 above, and further in view of U.S. Patent No. 7,147,943 (hereinafter Ono).

Ono does not cure the deficiencies of Oka and Yoshida, as it would not have been obvious to combine Ono with Oka or Yoshida to obtain the claimed method of manufacturing granular magnetic recording media, as asserted by the Examiner. Ono discusses forming a DLC protective layer 6 mainly composed of carbon and hydrogen on a Co-Cr-Ta-Pt alloy layer 5 (col. 8, lines 39-43). The Co-Cr-Ta-Pt alloy layer 5 of Ono is magnetic, but is different than the **granular** magnetic recording layer required by claims 1, 26, and 32.

The only teaching of the method of manufacturing granular magnetic recording media comprising providing a non-magnetic substrate including a surface and forming a layer stack on the surface of the substrate, the layer stack including an outermost granular magnetic recording layer is found in Applicants' disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claims 3, 29, and 36 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Oka in view of U.S. Patent No. 6,432,563 (hereinafter Zou).

The Office Action relies on Zou to attempt to cure the deficiencies of Oka.

The Office Action asserts that Zou teaches a granular magnetic layer that is longitudinal for use in a magnetic medium. Contrary to the Examiner's assertions, Zou does not disclose a granular magnetic layer, as required by the present claims. Zou describes Zn grain boundaries (col. 8, lines 51-67), not oxide, nitride, and/or carbide grain boundaries. Zou states in col. 8,

lines 56-59, “diffusion of the Zn to the magnetic layer grain boundaries provides enhanced magnetic grain isolation and improved magnetic recording properties.” Thus, Zou does not cure the deficiencies of Oka.

New Claims

New dependent claims 37, 39, and 41 recite, “...wherein the nano-scale roughness is less than 2.0 Å.” Nothing in the cited references teach or suggest the described subject matter. Additionally, dependent claims 38, 40, and 42 recite patentably distinguishing features of their own. It is submitted that these new claims distinguish over the cited references.

According to the claimed subject matter per dependent claims 37-42, the nano-scale roughness is less than 2.0 Å after treating the nano-rough and porous surface of the granular magnetic recoding layer. Thereby as taught in the instant specification, the nano-scale roughness as measured by Atomic Force Microscopy (AFM) is significantly reduced (pg. 13, line 19 – pg. 14, 4; and Fig. 5). However, Oka does not disclose or suggest this, and apparently is unaware of the unexpected improvement in nano-scale roughness of the granular magnetic recording layer provided by the claimed method.

Conclusion

In view of the above amendments and remarks, Applicants submit that this application should be allowed and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

Application No.: 10/776,223

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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